

Lightsource Test Report

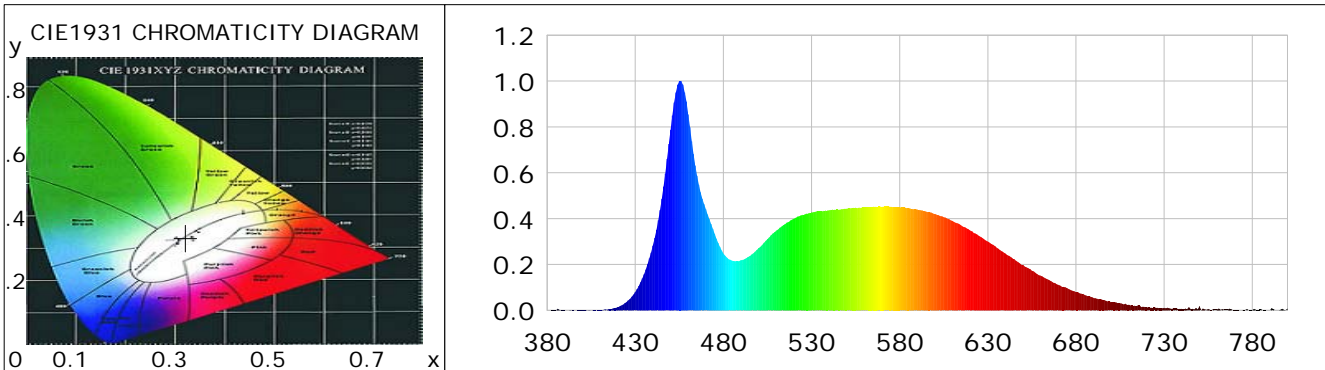
Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-055-5CWM-9W-TRF
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhre-TRF
 Product Number: 1
 Submitted Unit: 104521

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3211$ $y=0.3326$ $u(u')=0.2023$ $v=0.3143$ $v'=0.4714$
 CCT: $T_c=6050K$ ($duv=0.00090$) Color Ratio: $R=0.145$ $G=0.799$ $B=0.056$
 Peak Wavelength: 455.6nm Half Bandwidth: 22.3nm
 Dominant Wavelength: 490.9nm Color Purity: 0.042
 CRI: $R_a=84.9$, $avgR(1\sim14)=78.4$, $avgR(1\sim15)=78.6$ TM30: $R_f=82$, $R_g=94$
 GAI: $GAI_BB_8=92.2$, $GAI_BB_15=98.1$, $GAI_EES=87.9$
 R1 =84 R2 =91 R3 =93 R4 =83 R5 =84 R6 =85 R7 =88 R8 =72
 R9 =20 R10=77 R11=82 R12=57 R13=87 R14=96 R15=81
 Color Quality Scale: $Q_a=81.2$, $Q_f=81.1$, $Q_p=81.6$, $Q_g=92.1$
 Q1 =83 Q2 =99 Q3 =77 Q4 =69 Q5 =76 Q6 =79 Q7 =86 Q8 =90
 Q9 =96 Q10=87 Q11=82 Q12=82 Q13=83 Q14=74 Q15=78



Photometric Parameters

Luminous Flux: 1178.2 lm Efficiency: 108.89 lm/W Radiant Power: 3.765 W
 Total mains efficacy: 118.58 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 2176.70 Plm Pupil Lumens Per Watt: 201.17 Plm/W Pupil Factor (Kp): 1.847
 Circopic Flux: 5000.45 lm

Electric Parameters

Voltage: 230.00V Current: 0.0530A Power: 10.82W
 Power Factor: 0.9200 Frequency: 49.99Hz

Test Information

Scan Range: 380~800:1nm Photometric Method: sphere-spectroradiometer
 Stabilization Time: 0 ms ALC.: 1.0000 Photometric Condition: Sphere diameter: 2.00m, 4PI
 Max of Signal: 46459 (2542) CCD Integration Time: 395.67 ms

Condition: Tx:0.0°C, Ti:0.0°C, R.H.:60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-03-08 10:30:20
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0010	0.0393	525	0.4166	16.5767	670	0.1113	4.4293
385	0.0011	0.0436	530	0.4270	16.9928	675	0.0969	3.8551
390	0.0009	0.0347	535	0.4315	17.1716	680	0.0796	3.1679
395	0.0008	0.0299	540	0.4367	17.3758	685	0.0669	2.6613
400	0.0011	0.0425	545	0.4403	17.5189	690	0.0544	2.1651
405	0.0006	0.0221	550	0.4435	17.6494	695	0.0459	1.8258
410	0.0027	0.1062	555	0.4478	17.8190	700	0.0347	1.3822
415	0.0057	0.2261	560	0.4487	17.8531	705	0.0311	1.2372
420	0.0143	0.5705	565	0.4519	17.9816	710	0.0247	0.9839
425	0.0359	1.4278	570	0.4523	17.9990	715	0.0213	0.8464
430	0.0802	3.1903	575	0.4520	17.9869	720	0.0144	0.5723
435	0.1571	6.2520	580	0.4497	17.8957	725	0.0124	0.4916
440	0.2822	11.2310	585	0.4466	17.7728	730	0.0110	0.4361
445	0.4869	19.3747	590	0.4399	17.5036	735	0.0080	0.3183
450	0.7872	31.3246	595	0.4314	17.1644	740	0.0064	0.2554
455	0.9991	39.7559	600	0.4205	16.7340	745	0.0061	0.2436
460	0.8549	34.0168	605	0.4066	16.1787	750	0.0176	0.6993
465	0.5877	23.3856	610	0.3900	15.5180	755	0.0059	0.2335
470	0.4416	17.5740	615	0.3703	14.7351	760	0.0044	0.1738
475	0.3342	13.2998	620	0.3484	13.8636	765	0.0039	0.1564
480	0.2484	9.8859	625	0.3240	12.8909	770	0.0017	0.0660
485	0.2165	8.6168	630	0.2997	11.9260	775	0.0024	0.0945
490	0.2186	8.6996	635	0.2735	10.8850	780	0.0015	0.0612
495	0.2367	9.4170	640	0.2476	9.8517	785	0.0046	0.1827
500	0.2717	10.8127	645	0.2228	8.8660	790	0.0009	0.0365
505	0.3108	12.3691	650	0.1976	7.8636	795	0.0010	0.0387
510	0.3482	13.8570	655	0.1730	6.8827	800	0.0093	0.3691
515	0.3767	14.9901	660	0.1509	6.0032			
520	0.3994	15.8909	665	0.1309	5.2093			

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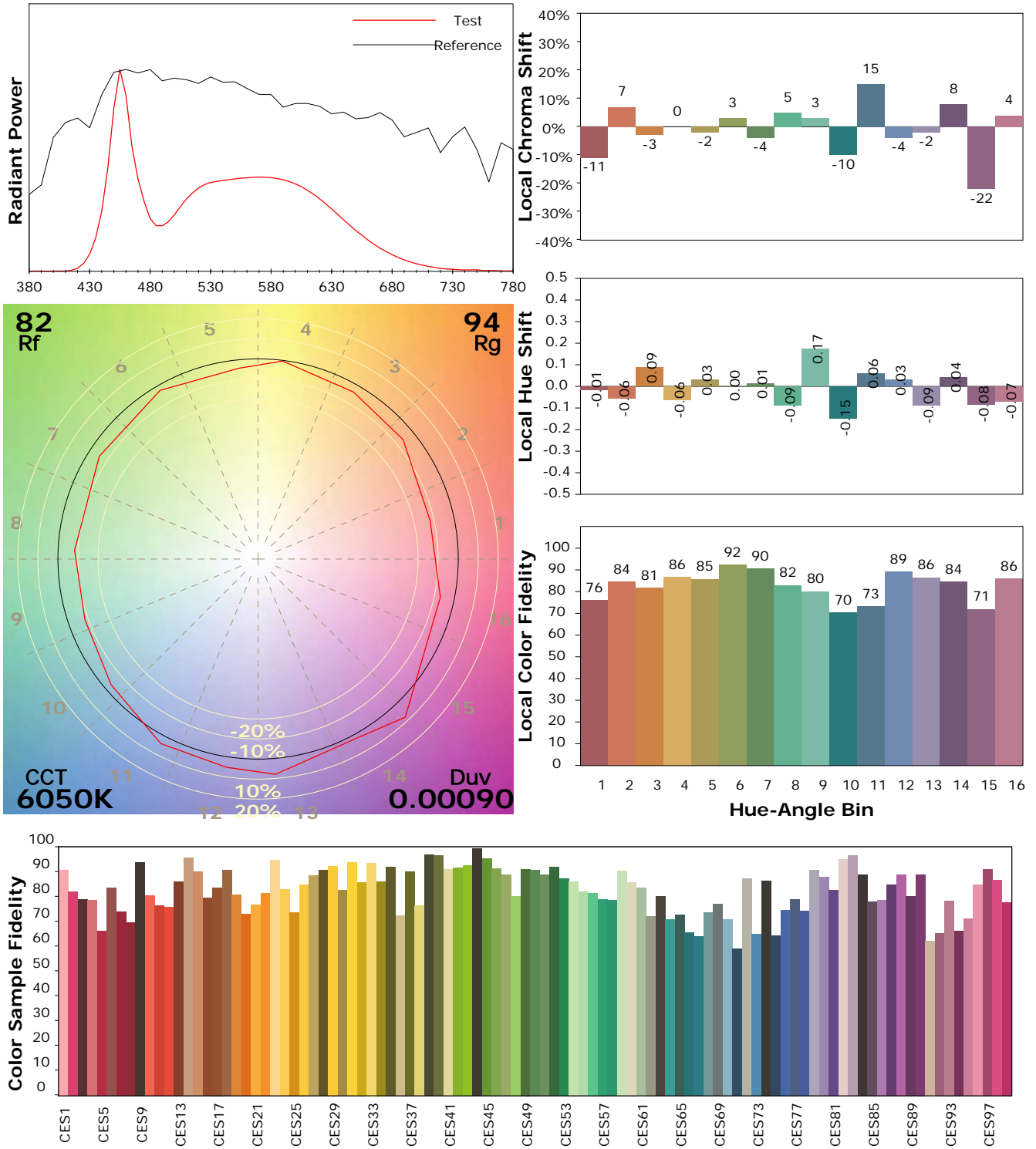
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IES TM-30-18 Color Rendition Report

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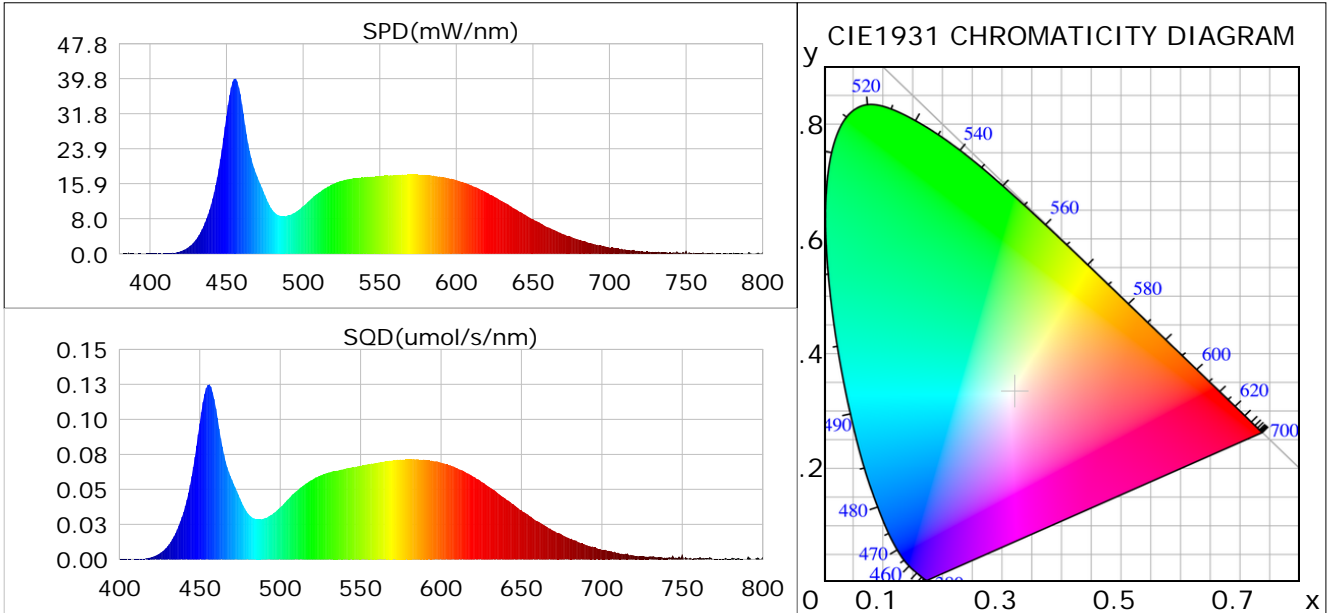
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Plant optical param data

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 CRI: $R_a=84.9$



Plant Optical Param

$ \mu_v(lm): 1178.20$	$Q_v(lm.s): 1178.20$
$ \mu_e, \dot{E}(W/nm): 3.77$	$Q_e(J): 3.77$
$ \mu_e(W): 3.73$	$ \mu_{fr}(W): 0.04$
$ \zeta_e: 0.34$	$ \zeta_{fr}: 0.00$
$PPE(umol/s/w): 1.56$	$K_{fr}: 0.02$
$Erb_Ratio: 0.68$	$PPF(umol/s): 16.86$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 4.72$
$PPF(500-600)(umol/s): 7.73$	$PPF(600-700)(umol/s): 4.40$
$PPF_r(700-800)(umol/s): 0.23$	$PPF.t(umol): 16.86$
$ \mu_{ch-A.t}(J): 0.30$	$ \mu_{ch-A}(W): 0.30$
$ \mu_{ch-B.t}(J): 0.22$	$ \mu_{ch-B}(W): 0.22$
$ \mu_b.t(J): 1.22$	$ \mu_b(W): 1.22$
$ \mu_y.t(J): 1.68$	$ \mu_y(W): 1.68$
$ \mu_r.t(J): 0.85$	$ \mu_r(W): 0.85$

Electric Parameters

Voltage: 230.00V	Current: 0.0530A	Power: 10.82W
Power Factor: 0.9200	Frequency: 49.99Hz	

Condition: $T_x:0.0^\circ C$, $T_i:0.0^\circ C$, R.H.: 60%
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